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A food safety educational program for students in grades 4-6.

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MAY 18 1991

CATALOGING PREP.

DEAR INSTRUCTOR:

How do we know that our food is safe to eat? How can we assure its safety once it has entered our homes? A recent survey by the Food Marketing Institute shows that nine out of ten consumers feel that product safety is important when shopping. Knowing the facts about food safety issues is the most important step in educating consumers, young and old.

Play It Safe: Goals for Food Safety is an educational program designed to teach your students about the various roles and responsibilities in food safety. Today, with more working families, more and more children are involved in preparing lunches, after-school snacks, and family meals. Students need to learn at an early age the importance of safe food handling and preparation.

In this program, students will learn that:

- ensuring food safety is a "team" responsibility involving growers, manufacturers, wholesalers/retailers, government officials, and consumers;
- foodborne illness due to microbiological contamination, not pesticides or food additives, is our greatest threat to food safety; and
- there is much they can do to minimize their risk of foodborne illness.

The sponsors of this program urge you to use *Play It Safe* and to share it with other teachers in your school.

INTRODUCTION

America's food supply is one of the safest in the world, yet, according to the Food and Drug Administration (FDA), between 21 million and 81 million Americans suffer from a food-related illness each year – many of which are never reported to the health community. A large number of these illnesses can be prevented by proper food handling at home. Based on figures collected between 1983 and 1987, the Centers for Disease Control estimate that improper food handling causes 70% to 80% of reported food-related outbreaks of illness.

Despite these findings, consumers' beliefs and concerns focus on the chemical contamination of our food supply. Additives and pesticides – those topics given a large amount of news coverage – are seen as the greatest risks. However, scientists agree that the primary foodborne problem is microbiological contamination, not chemical contamination. Education about the real foodborne problems and how to prevent them is needed.

Because a large number of food-related illnesses are caused by improper food handling at home and are preventable, it is important to teach children safe food-handling practices at an early age. *Play It Safe: Goals for Food Safety* is a program created to reach students in grades 4-6 with useful safety information for them and their families. As students assume increased responsibility for food preparation, they will need practical skills and critical thinking to protect themselves and their families.

The sponsors of this program are pleased to bring you *Play It Safe* as part of our continuing effort to assure that only safe and wholesome foods reach America's consumers. Your completion of the enclosed evaluation card will help us to assess the usefulness of this program and contribute valuable information for the planning of future programs.

This 16-page booklet contains four lesson plans, each complete with objectives, background information, teaching strategies, and optional activities. Complementary activities included with each lesson plan can be duplicated and distributed to the class, enabling students to practice what they have learned. A resource page provides further information, including correlation of these materials with appropriate textbooks.

Also included is a simple yet challenging game. Playing *Play It Safe* with students will reinforce the ideas presented in the program and allow teachers to gauge students' grasp of the material.





"MEET THE FOOD SAFETY TEAM MEMBERS"

OBJECTIVE

Students will identify the members of the food safety team and state how they work together.

BACKGROUND INFORMATION

Most Americans depend on others to grow and supply the foods they eat. If students read or watch the news, they may have questions about the safety of their food. They may have heard stories about food poisoning, the potential hazards of pesticides, or food tampering. They may wonder who protects them from possible problems.

Lesson One introduces the members of the food safety team – those people responsible for protecting the American consumer. Students will learn the safeguards and checkpoints as food journeys from the farm to the home. They will learn that the team members work together to ensure the safety of our nation's food supply, with the consumer as the final safety checkpoint.



GOVERNMENT OFFICIALS

The U.S. Department of Agriculture (USDA) is responsible for ensuring the safety of meat, poultry, and eggs.

The U.S. Food and Drug Administration (FDA) is responsible for all other food safety areas (such as seafood, fruits, vegetables, etc.) outside USDA jurisdictions, including the approval of new food additives and monitoring of pesticide residues.

The National Marine Fisheries Service has responsibility for seafood quality and identification, fisheries management, and other activities.

The Environmental Protection Agency (EPA) is responsible for the approval of all pesticides and writing standards for their manufacturing and labeling.

FOOD SAFETY TEAM MEMBERS




Government officials make the food safety regulations, or rules, and ensure that everyone follows them. All phases of agriculture production are regulated by federal agencies. Government officials inspect processing plants, farms, and markets to ensure that products going into the food supply are safe and wholesome. They keep records of chemicals used in food production, including where, how often, and on what foods. Other officials test food samples (including meat, seafood, produce, and grains) at farms, wholesale markets, processing plants, and supermarkets; and some agencies respond to complaints by consumers.


Government agencies make decisions that improve or protect the public's health. Since decisions about the use of chemicals are complex, scientists and public health officials work together to make the best decisions.




Growers, also called farmers, producers, or ranchers, use the safest and most modern methods to assure a plentiful and disease-free food supply. They follow strict rules on how to apply chemicals that help eliminate or remove mold, mildew, bacteria, insects, weeds, and disease from plants (such as produce and grains), resulting in a higher-quality product for consumers. These chemicals are known as pesticides, herbicides, and fungicides. Different methods of pest control include using natural pest enemies (or "good bugs" to destroy "bad bugs," such as ladybugs to control harmful aphids), growing crops that withstand pests, and rotating crops (changing crops to vary the need for different nutrients in the soil). Growers learn how to administer animal drugs when necessary to help keep their herds or flocks disease-free, lowering costs to consumers. Growers must follow rules to make

sure that plants or animals do not contain chemicals unsafe for consumers.

 **Manufacturers** process the plants, animals, and other agricultural products that growers sell to them. A manufacturer typically cans, freezes, or repackages meat, poultry, seafood, produce, and grain. Food manufacturers are always looking for ways to modernize their factories to make them efficient and clean with better quality control safeguards. Manufacturers put labels on their products to tell consumers what ingredients are in the food they buy. Manufacturers also follow government regulations designed to protect consumers. Many conduct their own tests for possible bacterial contamination of food and provide nutritional labeling. Manufacturers may also use chemicals to prevent spoilage and/or improve the taste, texture, appearance, or freshness of foods. Government regulations strictly control the use of such additives.

 **Wholesalers** buy food from growers and manufacturers and then sell it to local supermarkets. Wholesalers must store food properly before it is shipped to grocery stores. **Retailers** are the store owners who sell food to consumers. They train store personnel in safe food handling and storage. They must make sure their storage and display areas are clean. Cold foods must be kept cold. Frozen foods must be kept frozen. Retailers must check their displays continually to make sure no food items are too old or otherwise unsafe to eat. They check for cracked jars, bulging cans, and any sealed product that has been opened. They also check for decay or mold and freshness dates on items like meat, seafood, produce, and dairy products.

You, the  **consumer**, are the last stop in the check for safe food. Shopping, preparing, and storing food must be done very carefully, beginning by checking food at the grocery store, avoiding any products that have been opened, noting freshness dates ("use by" or "sell by" dates), and making sure that cans are not dented, rusty, or bulging. Rules should be followed at home, too, by washing produce, refrigerating or freezing cold food immediately, and following all cooking and storage directions on labels to prevent foodborne illness. Food preparation surfaces and food storage areas must be kept clean. Consumers' responsibilities will be explored further in Lesson Three.

Government officials, growers, manufacturers, wholesalers, retailers, and consumers are important members of the food safety team. Like members of a sports team, each group of individuals is needed "on the field" to attain the goal of food safety.

TEACHING STRATEGY

Duplicate and distribute Activity One, "Meet the Food Safety Team Members." To begin, ask students to explain what happens in a team sport, such as soccer. Accept a variety of answers and note on the board any

OPTIONAL ACTIVITIES:

1. Have students collect newspaper and magazine articles about food safety. Use these articles to enhance students' critical thinking skills. Does television or newspaper coverage indicate that a story is important, accurate, or factual? Why do some issues get media attention while others do not? Are both sides of an issue presented? Ask students to notice who is quoted in the articles. Are the sources believable?

2. Divide your class into five groups with each group representing different food safety team members. Have students look through newspapers and magazines to find articles on food marketing, government regulation, and food manufacturing. Suggest that they ask the school or public librarian for assistance. Also provide your students with any additional pamphlets or materials you may have requested and received from the sponsors of this program. Have the groups report to the class and discuss the point of view of the group they represent.

answers mentioning teamwork, following rules, moving the ball, reaching a goal, and winning. Explain to students that the goals of the food safety team can be compared to a soccer game. Every team member must do his or her part by following the **rules** (of food safety) and moving the **ball** (food) to the **goal** (the consumer). When safe and wholesome food reaches the consumer, everyone **wins**.

Tell students that each team member has a different part to play. Before giving students the descriptions of the team members, allow time for students to brainstorm about members of the food safety team and their roles in assuring a safe food supply. Write those ideas on the board and compare them with the descriptions of the food safety team members.

To reinforce the food safety team approach, ask students, "What makes a winning team?" (Answers might include the following: teamwork, positive attitude, pride, enthusiasm, working toward the same goals, training or knowing the basics, and fair officials.) Ask students how these same elements are reflected in the food safety team. (Possible answers include: the team members work together toward the same goal to make sure our food supply is safe – e.g., the manufacturer delivers frozen foods to the wholesaler/retailer, who in turn makes sure the foods are kept frozen; team members must know the basics of food safety and must obtain additional education and training as needed; and the government officials are fair, unbiased, and interested in delivering a safe food supply to consumers.)

Have students complete Activity One to reinforce information about the roles of the food safety team members.

ANSWERS

ACTIVITY ONE

1. Grower
2. Government Official
3. Consumer
4. Manufacturer
5. Retailer/Wholesaler



"MEET THE FOOD SAFETY TEAM MEMBERS"

America's food supply is one of the safest in the world. All of us on the food safety team have the responsibility to ensure that our food is safe – from the farm to the table.

Every member of the team plays an important role. Get to know us better and then figure out which team member will do the following:

1. Raise animals and harvest crops.

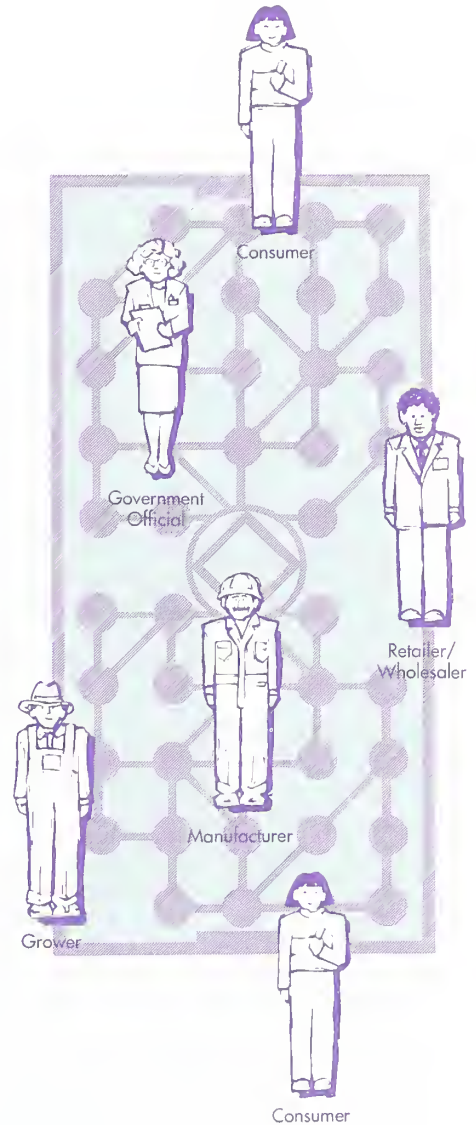
2. Inspect food and food-processing plants.

3. Buy and prepare food for friends and family.

4. Can, freeze, and repackage fresh food for sale to consumers.

5. Select wholesome food and store and display it properly.

▷ How do these individuals work as a team?





"TEAM STRATEGIES FOR FOOD SAFETY"

OBJECTIVE

Students will analyze food safety issues and determine the roles of the food safety team members.

BACKGROUND INFORMATION

America's food supply is one of the safest in the world. What makes it safe and what can we do to make sure it stays that way? Lesson Two addresses these questions.






Generally, concern about food safety is divided into two questions: (1) From farm to table, have chemicals been added to the food which may leave residues possibly unsafe to humans? (2) Has the preparation or processing of the food (whether at home, in restaurants, or in manufacturing plants) allowed for the introduction and growth of naturally occurring substances, such as bacteria or fungi (molds, mildew).

Although the first food safety issue explored in this lesson is the chemicals used in food production, U.S. government sources agree that food spoilage caused by microbes, which can cause food poisoning, is the only significant food-related health problem.

Food Safety and Chemicals: In recent years, chemicals have become a controversial subject. One reason is because scientists are better at their jobs than ever before – the analytical techniques they use are much more powerful. Where once it was believed that there were no detectable levels of chemical substances in our foods, now scientists, because of improved scientific methods, can detect the same substances in much smaller quantities. These "new" substances found in our foods may have been present all along, but not detected. Also, the concentrations now detected may be so low that they present little or no health risk to the public.

The chart in this lesson describes many common chemical substances used in food production. Because of the controlled application of

pesticides, many major achievements in crop quality have been attained in this century. A variety of delicious, nutritious, and attractive fruits and vege-

CHEMICAL SUBSTANCES THAT MAY BE USED IN FOOD PRODUCTION		
SUBSTANCE	WHO USES IT	WHY
Pesticides, herbicides, and fungicides	growers 	control insects, diseases, weeds, fungi, and other pests on plants, vegetables, and fruits
Animal drugs, hormones, and antibiotics	growers 	to prevent disease outbreaks; to make animals produce more milk, leaner and better grades of meat
Food additives	manufacturers 	to improve taste, texture, and consistency of food (e.g., sweeteners) and to prolong freshness; to prevent spoilage
Color additives	manufacturers 	to improve appearance of food; to act as filter against sunlight
	The U.S. government decides what types and amounts of pesticides and animal drugs are safe to use. State and federal government inspectors check for chemical residues in food. All food and color additives are subject to government regulation and testing.	

TIPS TO PROTECT AGAINST BACTERIA

tables can be purchased year 'round at affordable prices because of pesticides. Without them, crop damage and lower crop yields would result and the price of food would rise; and, in some cases, food would not be available at all. Recognizing consumer preferences, growers are using the least amount of pesticides they can and are actively searching for alternatives to pesticides.

Pesticide use is strictly controlled by the government. "Tolerance" levels, or maximum levels of pesticide residues, are set by the EPA. The FDA enforces these tolerances, except in the case of meat, poultry, and eggs, which are the responsibility of the USDA.

The use of other chemicals, such as food additives, is also monitored closely by the government. These additives can include familiar ingredients such as sugar and salt, as well as vitamins, minerals, spices, and food colors. All additives have specific functions in food. They are not used randomly or haphazardly. Food manufacturers use the smallest amount of an additive necessary to achieve a desired effect. Like pesticides, food additives allow consumers to enjoy a safe, nutritious food supply year 'round at a reasonable price.

Each member of the food safety team must use chemicals safely in the growing or processing of food. In turn, the government is responsible for making sure that each team member follows the rules of food safety. In addition, wholesalers/retailers have high standards of quality and sanitation, assuring the delivery of fresh, wholesome food products to consumers.

Food Safety and Foodborne Illnesses: While chemicals may concern many people, food-related illnesses result from a combination of naturally occurring foodborne bacteria and the unsafe handling of food. Consumers can significantly reduce the risk of acquiring food-related illnesses by following the rules of smart shopping, preparation, and storage of food.

Stomach pain, diarrhea, nausea, headache, and fever are often symptoms of food poisoning caused by different types of bacteria. However, for some people in certain high-risk groups, such as the elderly, pregnant women, and infants, eating foods containing harmful bacteria may result in serious illness or death. These harmful bacteria can be introduced into food at almost any stage of handling.

The food industry takes precautions to assure the delivery of safe food. Despite this, food can be contaminated by unsanitary growing and processing techniques before it reaches the home. Raw products such as meat, poultry, seafood, and eggs may be contaminated by specific bacteria picked up in their natural environment or at some point in handling.

Food can also be contaminated at the point of storage or purchase. Stress to students the importance of checking for signs of package damage or product tampering. All lids on jars should be sealed and all boxes should be intact. If the product has a tamper-resistant feature, such as a pop-up seal,



MEAT AND POULTRY
It is best to cook stuffing for poultry separately from bird. Bacteria from raw poultry can grow in stuffing. Though, if cooking stuffed poultry, stuff immediately before cooking; remove stuffing from poultry promptly after cooking. Tightly cover leftovers; store immediately in refrigerator; use within two days.



DRY FOODS
Store foods covered in dry, cool, dark cupboards; keep storage areas orderly, clean, and free of insects or rodents; store foods in coolest part of kitchen; mark foods with purchase dates to keep stock current; use foods in order they are purchased.



SEAFOOD
Store thawed or fresh seafood in the coldest part of the refrigerator; use leftovers within one to two days; do not freeze whole ungutted fish; avoid or discard clams, mussels, and oysters with cracked, chipped, or broken shells.

OPTIONAL ACTIVITY

Plan food safety trips to a local grocery store and/or to the school cafeteria. Students can ask managers and employees about the kinds of procedures they use to protect food from bacterial contamination. Encourage students to develop a list of questions to ask cafeteria workers, including how food is selected, cleaned, and stored. How often are inspections done by the health department? What health department regulations must be followed by the school cafeteria and the grocery store? What happens if any violations are discovered?

Have students ask their parents how they ensure safe food handling. Then, students can recommend five ways their families can handle food more safely and cleanly.

shoppers should check to make sure it is in the correct position. Jars that have been opened and then put back on shelves could be subject to spoilage and bacterial contamination.

Most food contamination in the home results from unsafe storage and preparation techniques. Some foods, such as meat, poultry, seafood, dairy products, puddings, stuffings, and creamed mixtures, are especially likely to support the growth of harmful bacteria, which can easily go unnoticed because they are too small for the human eye to see. Bacteria itself can't move from food to food (although they can be moved easily--by a sneeze, for example). Most are killed by high temperatures and stopped or slowed down by cold temperatures. These limitations allow people concerned with food preparation to take precautions to protect themselves and others against bacteria. And when in doubt if a food is safe to eat, throw it out! Some bacteria do not leave tell-tale signs like mold or bad odor. Not all contaminated food looks or smells funny.

TEACHING STRATEGY

Begin this lesson by explaining to students that all food is made up of chemicals. Foods labeled "all natural" are still made up of chemicals and are not better than those that list artificial ingredients (also chemicals). Chemicals can be either good or bad depending on the type or amount. Even chemical substances that are good for us can be bad if taken in large amounts. For example, while vitamin A, which is a chemical substance, is necessary for good health, too much vitamin A can become toxic and be a real risk to health.

Discuss with students the information about chemical substances listed in the chart in this lesson. Duplicate the chart and distribute it to students to help them in Activity Two.

Duplicate and distribute Activity Two to check for comprehension and to reinforce what students learned in Lessons One and Two. In Lesson Three, students will learn more about how to protect themselves and their families from foodborne illnesses.

Activity Two

1. E
2. A
3. B
4. C
5. D
6. C
7. D
8. E
9. A
10. B

ANSWERS



ACTIVITY 2

"TEAM STRATEGIES FOR FOOD SAFETY"

Match the description of duties on the left with the team member illustrated on the right by writing the correct letter in the space after each sentence.

1. "I'm studying how the seafood industry handles fresh fish. Our agency wants to cut down on illnesses caused by raw molluscan shellfish." _____
2. "When I shop, I always put my frozen foods in my cart last so they will have less time to thaw. I check the expiration date on any food I get from the dairy case." _____
3. "I may use a computer to determine the safe amount of chemicals to use on my crops and to keep track of how often I use the chemicals. I use fewer pesticides today than in the past and always look for ways to reduce the presence of pests and molds." _____
4. "I make sure that the food on my store shelves is fresh and kept at the right temperature." _____
5. "We put ingredient labels on all our products before they leave the plant so the people who buy them know exactly what is in them." _____
6. "We buy good-quality produce from farmers and we store and display the produce in clean conditions." _____
7. "The modern plant I work in has tough rules about keeping machinery and surfaces clean." _____
8. "Our agency checks food from other countries as soon as it comes off the ship. We also check complaints from consumers." _____
9. "I never buy food in dented, rusty, bulging, or leaking containers. I do not buy any jars that have been opened." _____
10. "I'm finding ways to use fewer pesticides by using the natural enemies of pests. For example, I can bring in harmless snails to help control harmful garden snails." _____



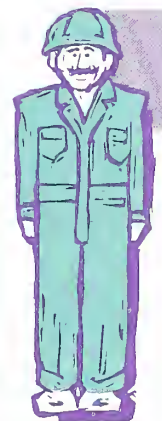
A. Consumer



B. Grower



C. Retailer/Wholesaler



D. Manufacturer



E. Government Official



"TAKE TIME OUT FOR FOOD SAFETY"

OBJECTIVE

Students will predict the consequences of poor food safety habits and propose solutions to problems.

BACKGROUND INFORMATION

Bacteria are everywhere. An average human being carries more than 150 kinds of bacteria inside and outside of his or her body. Bacteria can be either beneficial or harmful. Beneficial bacteria cause dead plants and animals to decay, enriching the soil and making it ready for new growth. Some bacteria change milk into cheese; bacteria in your intestines make vitamin K. Harmful bacteria in food may cause up to 81 million illnesses each year, including serious illnesses that affect the kidneys or heart.

Consumers are the best line of defense against the bacterial contamination of their food. There are three primary rules of food safety:



Rule 1. Keep Hot Foods Hot.

Rule 2. Keep Cold Foods Cold.

Rule 3. Keep All Food Preparation Surfaces and Equipment Clean.

Hot foods should be cooked to a temperature of 160 degrees F; cold foods should be kept refrigerated from 35 to 40 degrees F; and neither hot nor cold foods should be held for more than two hours in the **danger zone**: 40 to 140 degrees F.

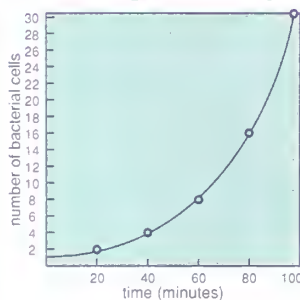
Remind students to follow family rules when using home appliances. There are specific safety rules concerning microwave cooking. Many students who use the microwave for snacks and meal preparation may have noticed that microwave cooking can heat foods unevenly, leaving some parts cool or undercooked. This uneven heating is not only inconvenient, it can also be dangerous. Bacteria and other organisms can survive in food that is not heated thoroughly. The simple microwave cooking rules on this page will help protect students from bacteria left by uneven heating.

Bacteria cannot move without help, but they can hitch rides around your kitchen in many ways: on dirty utensils (washing dishes immediately after meals also helps prevent the growth of bacteria); on purses or bags placed on countertops; on sponges or dish rags; on plates or cutting

OPTIONAL ACTIVITY

Ask students what kinds of foods they typically help prepare; e.g., scrambled eggs for breakfast, hot dog as after-school snack, salad for dinner. Ask them to identify any food safety violation they realize they have made in the past. How will students change their behavior in light of what they have learned in this lesson?

BACTERIAL GROWTH CURVE



Remind students how quickly bacteria multiply at the most favorable conditions (the danger zone). The above chart illustrates how the number of bacterial cells rapidly increase over a short period of time.

MICROWAVE FOOD SAFETY

1. Rotate food in microwave and stir if possible.
2. Cover food with a glass lid or with plastic. The trapped steam will heat the surface of the food. (Be sure to poke a hole in plastic wrap or vent to allow steam to escape.)
3. Allow microwaved foods to stand covered several minutes after cooking to enable heat to distribute evenly.
4. The more food being cooked, the longer it will take. Six hot dogs will take longer than three. Allow more time for more food.
5. Follow manufacturers' directions on packages.



boards used for raw meats, poultry, or seafoods; on hands if they are not washed; on hair if it gets into food. This bacterial hitchhiking is called cross-contamination. Cross-contamination is the main reason why keeping food preparation surfaces and utensils clean is so important.

TEACHING STRATEGY

Remind students of what they learned in Lesson Two: bacteria cannot move; they are killed at high temperatures; they are stopped or slowed down at cold temperatures. These weaknesses of bacteria mean that by following three general rules, students and their families can avoid most bacterial contamination of the food they eat. Write the three primary rules of food safety on the chalkboard.

Next, give students the following specific tips about handling and preparing food. Ask them to categorize each of the following tips under Rule 1, 2, and/or 3 of food safety.

1. Keep your hair and body clean and wash your hands for at least 20 seconds with warm, soapy water before handling food or preparing a meal. (Rule 3)
2. Make sure that your freezer and refrigerator are not so full of food that air can't circulate and cool food evenly. (Rule 2)
3. Don't let hot or marinated foods sit out at room temperature. (Rule 1)
4. Keep your refrigerator and freezer clean and check the temperature of each regularly by using a refrigerator thermometer. (Rules 2 and 3)
5. Keep all dry foods in sealed containers in a cool, dry, clean cupboard or storage area. (Rule 3)
6. Cover and store leftover food in the refrigerator immediately after eating a meal. (Rule 2)
7. Thaw foods quickly but never at room temperature. Safe ways to thaw: in the refrigerator, under cold running water, in a microwave (followed immediately with cooking, or as part of the cooking process). (Rule 2)
8. Always wash surfaces used for raw meat, poultry, or seafood thoroughly with hot, soapy water before using them for other food. (Rule 3)
9. Use clean utensils when you start cooking. Wash them after each use and before using them on a different food. Don't forget to wash your can opener and countertops. (Rule 3)
10. Cook all ground meat, poultry, and seafood until it is completely done. (Rule 1)

Duplicate and distribute Activity Three. Explain to students that the page is divided into before and after pictures. Have students make notes on a separate sheet about the food safety mistakes made in the "before" picture. Lead a class discussion about how the mistakes were corrected in the "after" picture. Discuss the consequences of not correcting the mistakes.

ANSWERS

ANSWERS TO ACTIVITY THREE

Refrigerator is too full, and some containers are not sealed properly. Same cutting board is being used for raw poultry and fresh vegetables, with poultry juices touching produce. Milk is left out on the counter. Purse is placed on food preparation surface. Piece of uncovered pie is in the unkept cupboard. Trash is overflowing. Pet bowls are spilling onto floor. Student in picture has long, untidy hair.

BONUS QUESTION ANSWER

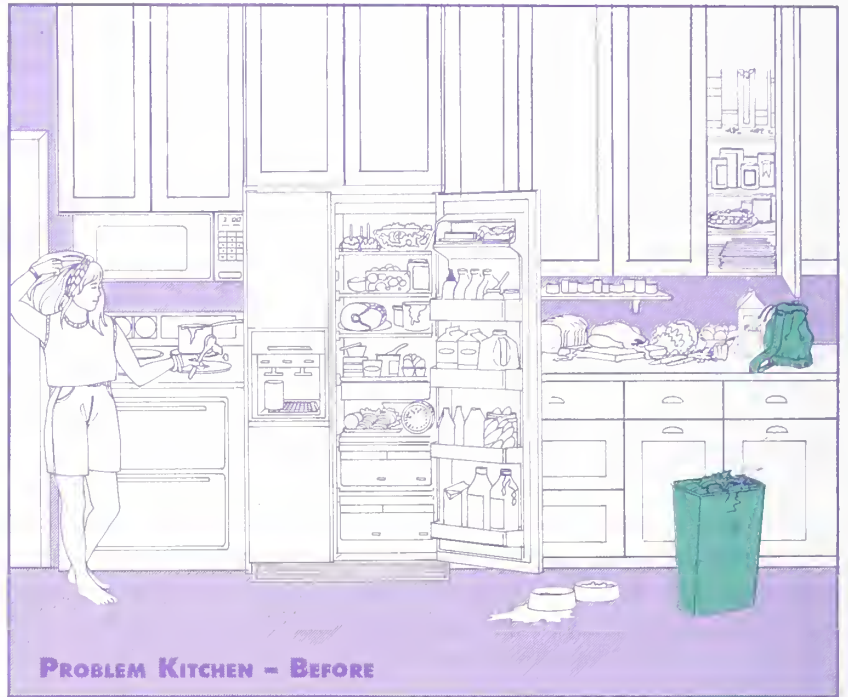
Microwaves cook by vibrating molecules. Moisture near the outside of the food evaporates, leaving the surface of the food cooler than the inside of the food. Air around the food is cooler, unlike the hot air found in a conventional oven. Bacteria on the surface and in the cold spots of food in a microwave has a much greater chance of survival unless the surface of food is thoroughly heated.



ACTIVITY 3

"TAKE TIME OUT FOR FOOD SAFETY"

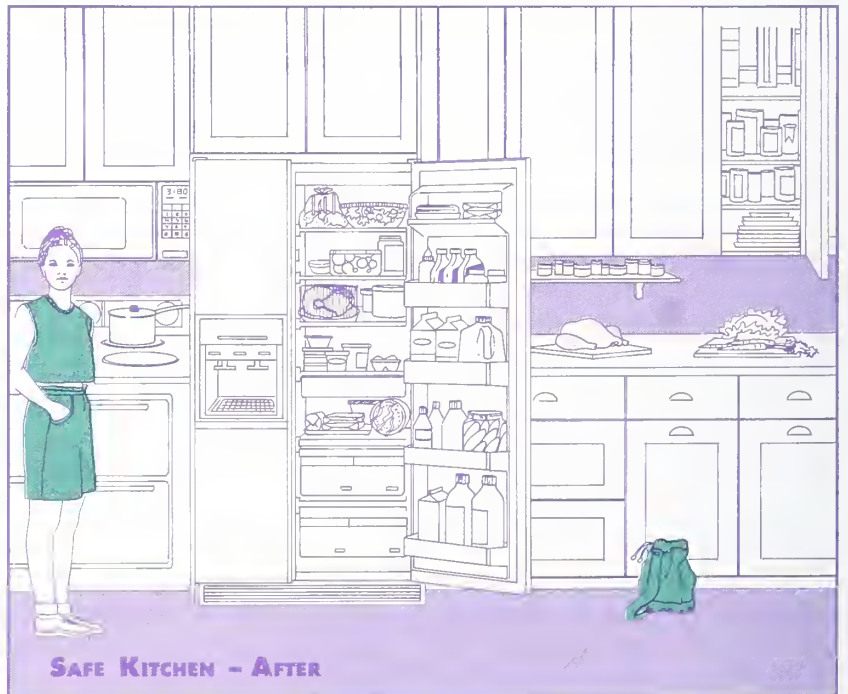
▶ What might happen if the problem kitchen is not made into a safe kitchen?



PROBLEM KITCHEN - BEFORE

BONUS QUESTION

Find out the difference in cooking method between a microwave and a conventional oven. Why does cooking with a microwave contribute to the increased risk of bacterial contamination?



SAFE KITCHEN - AFTER



"WINNING WITH FOOD SAFETY"

OBJECTIVE

Students will apply the three basic food safety rules in their own home.

TEACHING STRATEGY

Students in grades 4-6 are most likely to be concerned with shopping and preparing food for breakfasts, packed lunches, and after-school snacks. Lesson Four will help students make good shopping choices and to avoid common food preparation mistakes that could lead to foodborne illnesses. The following questions will encourage class discussion and enhance students' critical thinking skills (e.g., problem solving, decision making, evaluative thinking skills) concerning their daily decisions and actions.

Discussion Question 1: Ask students to name the foods they eat for breakfast, lunch, and snacks. Compile their choices into a list on the board. After the list is complete, encourage students to discuss what they would look for and think about when buying items on the list. Accept any relevant answers. Students should mention checking fresh produce for decay or mold, making sure that eggs are not cracked, checking the expiration dates on dairy products, meat, and poultry, and making sure that packages are properly sealed and that jar lids have not been opened. Boxes should be intact and cans should not be dented, bulging, or rusty. Foods such as milk, eggs, cheese, and cream-filled pastry should be found in the refrigerator section in the store from which they are purchased.

Discussion Question 2: Ask the class to compile a list of rules for a packed lunch. Accept a wide range of answers. Possible answers are:

1. If using a lunch box, make sure it is washed after each use.
2. Pack foods that will not spoil rapidly at room temperature.
3. Wrap and seal foods completely.
4. Wash fruits and vegetables before packing. Extend this discussion by planning a safe picnic meal. Students should mention safety rules such as the following:
 1. Never use the same platter for raw meat, poultry, or seafood and cooked meat, poultry, or seafood without washing the platter with hot, soapy water between uses. (Harmful bacteria from raw foods can remain on the platter and contaminate cooked foods.)
 2. Never store salads or cold foods in a hot car or car trunk. Always store these foods in a cooler in a shady or cool area. (Temperatures may be in the danger zone, where bacteria are subject to growth and multiply quickly.)
 3. Never allow food to sit in the danger temperature zone for more than two hours before or after eating. (Bacterial growth is possible, and as temperatures rise, bacterial growth increases.)

OPTIONAL ACTIVITY

Allow students to plan a party and bring after-school snacks that they have prepared according to food safety rules. Students can share snacks and trade recipes, maybe even compiling an after-school snack recipe booklet for class distribution.

Discussion Question 3: Ask students what food safety rules to watch for as they prepare after-school snacks. Accept all relevant answers. Some possible answers are:

1. Do not leave cold items, such as milk or yogurt, out on the counter at room temperature.
2. Do not pile books or book bags (which may have been on the classroom floor all day) onto counters and food preparation areas.
3. Wash hands before and after food preparation.
4. Use clean utensils when preparing snacks.
5. Heat leftovers thoroughly before eating.
6. Check the expiration date on all dated foods before eating.
7. Discard bread, cheese, or produce showing signs of decay, such as mold.
8. Refrigerate or throw away any uneaten portion of food.

Discussion Question 4: Have students discuss at least three ways to make sure food heated in the microwave is safe from bacterial contamination. Students should mention any three of the following: rotating food, covering food, letting food stand so heat from inside is evenly distributed, increasing cooking time for greater amounts of food.

Duplicate and distribute Activity Four. Have students complete each sentence correctly. When the class has finished Activity Four, check over the answers in class. Have students take the correctly completed activity home and post it in the family kitchen. Recommend that students discuss what they have learned about food safety with their family members. Ask students to report back one change their family has made in purchasing, cooking, or storing food to prevent possible illness.

ANSWERS

ACTIVITY FOUR

1. consumers
2. dented, bulging, leaking, or rusty cans
3. expiration date
4. frozen foods
5. contamination
6. eggs
7. cooked
8. Hot
9. 40 to 140
10. wash hands



ACTIVITY 4

"WINNING WITH FOOD SAFETY"

Complete the following sentences correctly, using what you have learned in *Play It Safe*. . . . After your answers have been checked, take this checklist home and post it in your kitchen to remind you and your family of important food safety rules.

1. Improper food handling by _____ is the biggest cause of food-related illness.
2. Name three danger signals to look for when buying canned goods. (1.) _____ (2.) _____ (3.) _____
3. Always check the _____ when buying foods in the dairy case.
4. Put _____ in your cart last when shopping to prevent thawing and spoilage.
5. Using the same platter for raw meat, poultry, or seafood and cooked meat, poultry, or seafood can cause cross- _____.
6. Eating uncooked cookie batter may be unsafe because the batter may contain raw _____.
7. Raw foods such as meat, poultry, seafood, and eggs must be _____ thoroughly before eating so that any bacteria will be killed.
8. One of the basic food safety rules is Keep Hot Foods _____.
9. The temperature danger zone for food is between _____ and _____ degrees F.
10. Before preparing any food, _____ with warm, soapy water.

FOOD SAFETY TIPS



DELI SAFETY

When shopping, always pick up hot and refrigerated foods last. Refrigerate promptly at home. Freeze all products that will not be used within one to two days.



MEAT SAFETY

Check freshness dates when purchasing meat. Prepackaged fresh meat can be stored in the refrigerator for two to four days. For freezer storage, rewrap meat in foil, freezer paper, or heavy plastic wrap.



POULTRY SAFETY

Refrigerate poultry promptly after purchasing. Always thaw poultry in the refrigerator or in the microwave. Cook poultry until well done, not medium or rare.



PRODUCE SAFETY

Avoid decay or mold when purchasing produce. Wash produce under clean running tap water before using or eating.



SEAFOOD SAFETY

Purchase fresh seafoods with a light "ocean-like" aroma – not fishy. Store fresh fish one to two days. Cook thoroughly (fish turns from translucent to opaque and is flaky but still moist).

USDA Meat & Poultry Hotline
(800) 535-4555



GAME RULES

PREPARING THE MATERIALS

- Cut out the question/wild cards and playing pieces (balls).
- Label the backs of the cards (Question Card or Wild Card).
- As an option, encourage students to develop additional question/wild cards.
- Laminate the cards, playing pieces, and gameboard for protection.

USING THE QUESTION CARDS

- The referee asks questions in order of numbering (1, 2, 3).
- A correct answer allows a team's ball to move a corresponding number of spaces (e.g., question 1 = one space; question 2 = two spaces, question 3 = three spaces).

OBJECT OF THE GAME

The first player or team to answer correctly the most questions and score five goals wins. (As an option, play the game in four 5-minute quarters for a total of 20 minutes. The team to score the most goals wins.)

GETTING READY

1. Ask for two volunteers to serve as game "referees." One referee asks questions and verifies answers. The other acts as the official timekeeper and scorekeeper. He or she makes sure the teams take no more than 60 seconds per question and records goals by placing a coin on the appropriate numbers on the scoreboards.
2. Divide the rest of the players into two teams. (Note: This game can be easily adapted for as few as three students, with one serving as referee.)
3. Place the question and wild cards face down in separate piles.
4. Flip a coin to determine which team will go first.
5. The team that wins the coin toss chooses which goal it will attack.
6. Place the two balls in the center circle.

PLAYING THE GAME

A team attempts to move its ball in position to score a goal. (The ball can move only between spaces joined by a line.)

- Start by having the referee draw a question card and ask the playing team question 1. A team continues playing until it misses a question. All questions on a card are answered in succession, with a team advancing to additional cards if needed.
- When a team answers a question incorrectly, the play turns over to the opposing team. The opposing team must then try to answer the missed question correctly.
- If the second team also answers incorrectly, the referee reads the correct answer and play returns to the first team.
- When a team's ball lands on a "Wild Card" space, the referee picks up a wild card and reads its message.
- After a team scores, its ball is returned to the center circle and the play turns over to the opposing team.
- The first team to score five goals or to score the most number of goals within the allotted time period wins.

Reserve

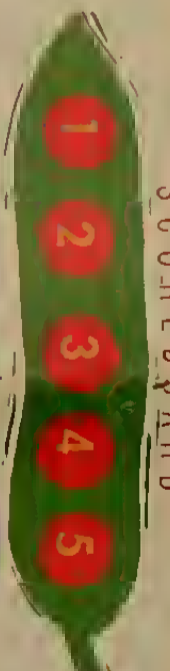
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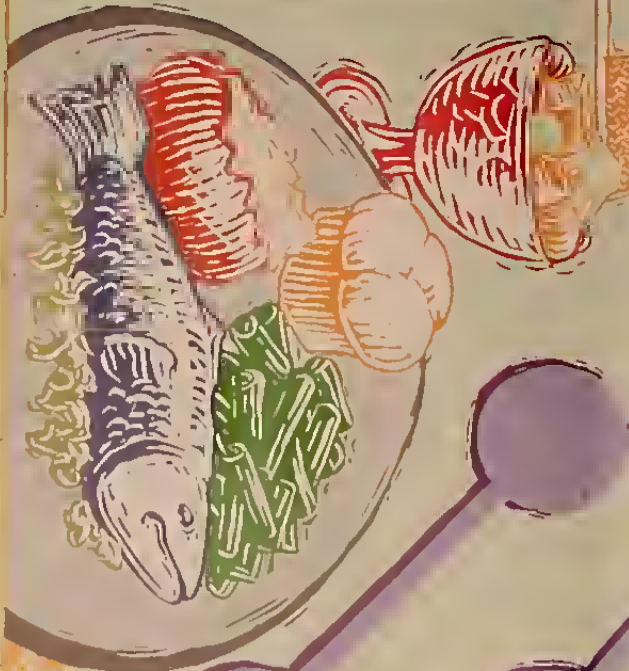
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SCOREBOARD



SCOREBOARD



<p>1. True or false: Foods labeled "all natural" contain no chemicals.</p> <p>2. List the five food safety team members.</p> <p>3. Name two rules for carrying a packed lunch.</p>	<p>1. True or false: Government regulations control the use of all food additives.</p> <p>2. Who is the last person in the food safety team to check for safe food?</p> <p>3. One method of natural pest control is (a) rotating crops (b) using pesticides (c) using herbicides.</p>
<p>1. True or false: All contaminated food looks different and smells funny.</p> <p>2. What food safety team member might apply pesticides to produce?</p> <p>3. Name one reason growers use animal drugs on their herds?</p>	<p>1. Name one important safety rule to follow before preparing food.</p> <p>2. True or false: Foods marinating or soaking in a seasoned, flavored liquid can sit out at room temperature.</p> <p>3. What food safety team member decides the types and amounts of pesticides that are safe to use?</p>
<p>1. True or false: Cross-contamination means any food can become a source of food poisoning.</p> <p>2. Who is responsible for product labeling on products?</p> <p>3. True or false: Using ladybugs to control harmful aphids is a form of natural pest control.</p>	<p>1. True or false: Bacteria can grow on sponges and dish rags.</p> <p>2. Name one way retailers ensure a safe food supply.</p> <p>3. Without pesticides, there could be (a) an increase in crop damage (b) lower prices to consumers (c) a and b.</p>
<p>1. True or false: If a food smells okay, it is definitely safe to eat.</p> <p>2. Do chemicals or bacteria cause more food-related illnesses?</p> <p>3. The best choice for a packed lunch that will not spoil or grow bacteria is a (a) tuna salad sandwich (b) piece of leftover fried chicken (c) peanut butter and jelly sandwich.</p>	<p>1. All food safety team members have a common goal. What is it?</p> <p>2. Name one food safety team member that might research methods of natural pest control, such as rotating crops.</p> <p>3. Name one way bacteria are helpful.</p>
<p>1. When grocery shopping, what items should you purchase last?</p> <p>2. Food should sit in the temperature danger zone for more than (a) two hours (b) four hours (c) five hours.</p> <p>3. What picnic food requires storage in a cooler? (a) potato salad (b) cheese cake (c) a and b.</p>	<p>1. Who is the best line of defense against bacterial contamination?</p> <p>2. Why are food additives, such as sweeteners, added to food?</p> <p>3. What are the three main rules of food safety?</p>
<p>1. Why should you mark foods with purchase dates?</p> <p>2. What should you look for in deciding if produce is not fresh?</p> <p>3. What is important to remember when cutting up produce and meat, poultry, or seafood?</p>	<p>1. What can happen to a jar that has been opened and reshelfed?</p> <p>2. Would food cooked at 125° F be in the danger zone?</p> <p>3. Name two safety rules for microwave cooking.</p>
<p>1. Which method of thawing foods is unsafe? (a) in the refrigerator (b) at room temperature (c) in the microwave (d) under cold running water.</p> <p>2. True or false: Bacteria is killed at 95° F.</p> <p>3. Why is it important not to overload refrigerators and freezers with food?</p>	<p>1. Who are at a higher risk of food poisoning? (a) the elderly (b) infants (c) pregnant women (d) all of the above.</p> <p>2. What is the safest way to cook stuffing for poultry?</p> <p>3. What is a pesticide?</p>
<p>1. Name one way you can determine if a dairy product is safe to eat.</p> <p>2. What type of chemicals help prevent disease in animals?</p> <p>3. Name one naturally occurring pest that can spoil your food.</p>	<p>1. Name one way food can be contaminated at the point of storage or purchase.</p> <p>2. Name one reason color additives are added to food.</p> <p>3. If an appliance thermometer reads 52° F inside your refrigerator, is the refrigerator safe for food?</p>
<p>1. Name two symptoms of food poisoning.</p> <p>2. At what stage can harmful bacteria enter food?</p> <p>3. What food safety team member buys food from growers and manufacturers and sells to local supermarkets?</p>	<p>1. True or false: Pesticides have enabled consumers to enjoy a variety of produce year around at affordable prices.</p> <p>2. Most food contamination in the home results from (a) unsafe storage (b) unsafe preparation techniques (c) a and b.</p> <p>3. What food safety rule is important in handling raw and cooked meat, poultry, and seafood?</p>
<p>1. True or false: Food can become contaminated prior to its purchase by unsanitary growing and processing techniques, improper storage, and/or tampering.</p> <p>2. True or false: Bacteria can grow or multiply at 32° F.</p> <p>3. Why may raw cookie batter be unsafe to eat?</p>	<p>1. True or false: All food is made up of chemicals.</p> <p>2. One characteristic of bacteria that helps consumers keep them in control is (a) they are killed by high temperatures (b) they can move quickly (c) they multiply in warm temperatures.</p> <p>3. Name two safe ways to thaw foods.</p>
<p>1. How do wholesalers protect our food?</p> <p>2. How can you tell if a food product has been tampered with?</p> <p>3. The U.S. Department of Agriculture is responsible for ensuring the safety of (a) meat (b) poultry (c) eggs (d) all of the above.</p>	<p>1. True or false: Non-refrigerated foods should be stored in the coolest, driest part of the kitchen.</p> <p>2. What is the purpose of an ingredient label on a product?</p> <p>3. Name three food items that are likely to support the growth of harmful bacteria.</p>
<p>1. What can you do to make sure you use foods in the order purchased?</p> <p>2. How should kitchen cupboards be kept for storing foods?</p> <p>3. Between what temperatures should cold foods be refrigerated? (a) 0° to 32° F (b) 35° to 40° F (c) 40° to 45° F (d) 40° to 140° F.</p>	<p>1. True or false: America's food supply is one of the world's safest.</p> <p>2. Name two ways bacteria move around your kitchen.</p> <p>3. In what temperature range is the danger zone? (a) 30° to 150° F (b) 35° to 40° F (c) 40° to 140° F.</p>
<p>1. Who sells food to the consumer?</p> <p>2. True or false: Bacteria cannot grow in microwaved foods.</p> <p>3. How can microwave cooking contribute to foodborne illness?</p>	<p>1. True or false: Too much of a chemical substance, such as vitamin A, can be bad for you.</p> <p>2. What food safety team member makes food safety rules?</p> <p>3. True or false: Manufacturers use the smallest necessary amount of an additive to achieve a desired effect.</p>
<p>1. True or false: Today, improved scientific methods can detect very small amounts of chemicals in foods.</p> <p>2. What food safety team member processes the produce and animals sold to them by growers?</p> <p>3. Name one common food additive.</p>	<p>1. What food safety team member selects wholesome foods and stores and displays them properly?</p> <p>2. How many kinds of bacteria does an average human being carry?</p> <p>3. An example of a food additive is (a) sweetener (b) salt (c) sugar (d) all of the above.</p>
<p>WILD CARD</p> <p>Did you know that color additives are sometimes added to foods to act as a light filter? They protect flavors and vitamins that can be affected during storage.</p> <p>Save this card. It entitles you to one free turn when you land on a "Lose Turn" space!</p>	<p>WILD CARD</p> <p>Imported foods and food safety: The U.S. government requires that imported foods meet the same strict food safety requirements as foods grown, caught, and processed in the U.S.</p> <p>This card entitles you to one free goal!</p>
<p>WILD CARD</p> <p>FDA: A government agency monitors the safety of growing and harvesting waters where shellfish like clams, mussels, and oysters are caught.</p> <p>Move ahead two spaces!</p>	<p>WILD CARD</p> <p>Have questions about food safety? Ask your local grocery store manager, produce manager, butcher, or seafood department manager.</p> <p>Bonus! Move ahead three spaces!</p>



WE VALUE YOUR OPINION. BY ANSWERING THIS QUESTIONNAIRE,
YOU WILL HELP US IMPROVE FUTURE EDUCATIONAL PROGRAMS.

1. Do you plan to use this program? yes no
autonomously committee other _____ (PLEASE EXPLAIN)
2. How do you decide which materials will be used in your classroom?
autonomously committee other _____ (PLEASE EXPLAIN)
3. With how many students did you use this program?
_____ 4th _____ 5th _____ 6th

4. How would you rate the features of this educational program? (Circle one number for each item.)

	LOWEST RATING	HIGHEST RATING
Educational value	1 2 3 4 5	1 2 3 4 5
Ease of use	1 2 3 4 5	1 2 3 4 5
Appeal to students	1 2 3 4 5	1 2 3 4 5
Recommend to others	1 2 3 4 5	1 2 3 4 5

Other comments: _____

Name _____ Subjects taught _____
School address (street) _____ (city) _____ (state) _____ (zip) _____

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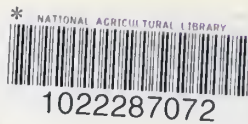
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School address (street) _____ (city) _____ (state) _____ (zip) _____

Play It Safe

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